Lat 40.02285 Lon -121.40587

Forest Health Protection

Pacific Southwest Region
Northeastern California Shared Service Area

Date: August 24, 2016
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To: District Ranger, Almanor Ranger District, Lassen National Forest

Subject: Hazard tree evaluation of Lotts "T" High Lakes trailhead area, Lassen National Forest (FHP Report NE16-09)

Summary

At the request of David Seiler, Facilities Engineer, Lassen Supervisor's Office, Danny Cluck, Forest Health Protection (FHP) entomologist visited the Lotts "T" parking area and proposed campground on August 11, 2016. The objective of this visit was to evaluate hazard tree conditions within the proposed area for parking lot improvement and campground construction. Recommendations provided in this report will assist in planning for each of these projects. David Seiler, Tammy Alexander (Small Sales Officer), and Stacy Kronner (District Recreation Officer) were present during the site visit.

Figure 1. Decadent red fir and western white pine stand at Lotts "T" parking area.

Key findings:

- The proposed project area is within a decadent older red fir and western white pine stand that is infested with several forest pathogens including root disease (Figure 1).
- Many trees in this area would be considered hazards to people and property if campsites where constructed among them.
- Due to the age of the stand and the presence of pathogens, tree mortality is expected to be an ongoing problem for the foreseeable future.
- Large areas of healthy red fir regeneration exist adjacent to the proposed project area that could be managed to provide future camping areas.

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Description of the project area

The Lotts "T" High Lakes trailhead is located approximately 30 miles northeast of Chico, CA (40.022852 and 121.405871). The elevation is 6,587 feet with an average annual precipitation of approximately 90 inches. Existing forest type is predominantly red fir (*Abies magnifica*) with scattered western white pine (*Pinus monticola*). This proposed project area is within a mature stand with many decadent trees.

Management objectives

The plan for this area is to improve the OHV parking area, provide a vault toilet and construct camp sites along a new loop road off of the parking area.

Conditions that are contributing to tree hazards in the proposed project area

The following biotic agents were observed within the proposed project area contributing to tree mortality and declining tree health:

- Mountain pine beetle (*Dendroctonus ponderosae*)-caused mortality of western white pine.
- White pine blister rust (*Cronartium ribicola*) cankers killing the tops of western white pine.
- Fir engraver beetle (*Scolytus ventralis*)-caused mortality and top-kill of red fir.
- Dwarf mistletoe (*Arcuethobium abietinum* f. sp. *magnificae*) infections on red fir.
- Cytospora canker (*Cytospora abietis*) in red fir.
- Heterobasidion root disease (*Heterobasidion occidentale*) in red fir.

Potential Alternatives

*Proceed with proposed project within mature red fir/western white pine stand **(not recommended)**:* Campgrounds that are located within true fir stands are some of the most difficult to manage due to the presence of root disease and other forest pathogens. Green hazard trees are typically abundant and mortality is chronic, especially during droughts. It is estimated that 30 to 60% of the existing trees might need to be removed around the proposed campsites due to high failure potential. This is based on evidence of Heterobasidion root disease in the area (delaminated decay of the root collar area on dead and down trees and the presence of conks within old stumps) and the decadent condition of the existing trees (older, infected with dwarf mistletoe and Cytospora canker) which would allow the root disease to readily spread within the root system. Although no old wind thrown trees were observed in this area, the presence of root disease pockets is a serious concern. There also exists many older dead and down trees within the stand that were likely stressed by disease infections. These trees were killed by either fir engraver beetles, wood borers or a combination of both. Tree mortality will likely be an ongoing problem in this area creating the need for annual inspections and hazard tree abatement. Another concern is that if a large number of trees need to be removed due to high failure potential, the stand may be left understocked, relatively open and potentially vulnerable to wind throw.

*Proceed with parking lot improvement and vault toilet, abandon plans for campground construction within mature red fir/western white pine stand **(recommended)**:* Fewer trees exist within the existing unimproved parking area so tree removal would be limited to trees with high

failure potential that are within striking distance of the parking lot. Most of these would be around the perimeter. Islands could be constructed around any clumps of healthy trees that are currently within the parking area. Islands of appropriate size would give trees room to grow, reduce compaction and protect them from vehicle traffic.

If a campground is desired at Lotts "T", it should be located in an alternative area. There are at least three areas, one of which is very large, that are primarily stocked with red fir regeneration without an overstory of decadent trees. These areas consist of dense thickets of seedling and sapling sized trees that could be thinned to desired spacing to increase growth; to provide future shade to campsites. Clumps of regeneration could also be maintained for screening between campsites. White pine blister rust-resistant western white pine seedlings could be planted in these areas as well to promote species diversity.

Planning a campground in these areas may not be the ideal situation in the short-term, due to the lack of shade, but will likely be the best long-term option for having a campground located within a healthy forest with minimal hazard tree issues.

General Recommendations for Campgrounds

Maintaining and promoting healthy trees are important objectives for development plans in campgrounds. Care should be taken during future campsite, trail and facility construction to minimize negative impacts on the landscape. The following guidelines should be applied for areas under construction or in areas where future construction will take place.

- Tree density should be appropriate for the site. This will provide access to light, moisture and nutrients and allow the trees to better cope with their altered environment.
- Trees that will directly interfere with structures or that will be seriously damaged during construction or excavation should be removed.
- Leave a mixture of ages and species to provide a continual forest canopy over the years.
- Fence off individual or groups of trees before construction to negate or minimize root damage by soil compaction or trunk and root damage by equipment. Protective fences should be placed, at a minimum, at drip line. Depending on the species, tree roots can exist within a radius two times the crown radius and encompass an area well beyond drip line. Drip line is defined by the outer edge of the foliage. Penalties for damaging trees should be incorporated into tree removal or construction contracts.
- Road or lot grades should be changed as little as possible. Grading damages roots and can set up conditions that favor soil erosion. It can also alter the contour such that the flow of surface and subsurface water is drastically affected.
- Trenches should always be dug away from tree roots.
- Do not back fill with earth or rocks around the trunks of trees.
- Avoid paving with either concrete or asphalt over root systems, or close to the trunks of trees.
- Use caution in applying wood preservatives and other chemicals to buildings. Trees and other plants have been killed by direct contact with them or as a result of their runoff in rainwater.

Future construction or vegetation management activities that incorporate the above guidelines will help assure the existence of vigorous and healthy trees following project completion.

The R5 policy for developed recreation areas should be followed for any tree felling in the Lotts "T" area. R5 policy is that all conifer stumps greater than 3" in diameter must be treated with a registered borate compound (FSM R5 Supplement 2300-92-1 modified by FSH R5 Supplement 3409.11-2010-1) within areas such as campgrounds, day-use areas and other high-use areas such as parking lots and boat ramps.

If you have any questions regarding this report and/or need additional information please contact Danny Cluck at 530-252-6431.

/s/ Danny Cluck

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